

BLUE

Work Order ID 62605

October 5, 2010 10:33:27 AM



Page 1

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Aft, Blue

Start Date: 10/05/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/19/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals:

Process Plan:

CZ

Date: 10/10/05

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run H

Tool ID Tool # Plan Accept Reject Inp

Draw Nbr	Revision Nbr
D206-667-243	C



100

0.00



DOCUMENT CONTROL

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-203 CHG003

5401-5

\$ 8/10/10/28

110

0.00



BENDING MACHINE - CROSSTUBES

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-243 using CNC bender program D206-667-203

EL

10-10-14

X1

120

QC15- Crosstube Dimensional Check

0.00



QC

Memo

0.00

Quality Control

8/10/10/14

TL

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62605

October 5, 2010 10:33:27 AM



Page 2

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Aft, Blue

Start Date: 10/05/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/19/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

130

0.00



Crosstubes

Crosstubes

Memo

0.00

Crosstubes

1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 and drill table DT8577 and tower holes #6 as per QSI0010 and as per Dwg D206-667-243. Drill all (3) top holes.

2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 Check dimensions between holes on all four sides.

3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.

4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill only the top (2) holes.

5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243

6-Drill Fwd rivet holes using drill Jig DT8789FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.

7-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D206-667-243.

8-C'sink holes as per Dwg D206-667-243.

9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-243 Inside of Cuff (Do not engrave on outside of tube)

10 -Deburr & Inspect for surface damage. Repair damage within limits as per

EL 10-10-14 (21)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62605

October 5, 2010 10:33:27 AM



Page 3

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 10/05/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/19/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Dwg
D206-667-243

140

Crosstubes Chemical Conversion

0.00

SAP
10-10-18



HandFXtube

Memo

0.00

Hand Finishing Crosstubes

0

150

QC3- Inspect Part Finish

0.00



QC

Memo

0.00

Quality Control

1 10/10/20

160

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

1 10-10-20

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62605

October 5, 2010 10:33:27 AM



Page 4

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft, Blue

Stop



Start Date: 10/05/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/19/10 Req'd Qty: 1.00

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170 	Outsource process - NDT per QSI038 4.1	0.00							
Outsource2	Memo	0.00							
Outsource process - NDT	Liquid Penetrant Inspection as per QSI 038Or Issue P/O: <u>12783</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								
180 	Packaging	0.00							
Packaging	Memo	0.00							
Packaging	Ensure copy of NDT results attached to work order.								
190 	QCS- Inspect part completeness to step on W/O	0.00							
QC	Memo	0.00							
Quality Control	Ensure results are as per Dwg D206-667-243								

CL 10/10/21 (1)

10/10/21 (1)

MA 10 10 25 (1)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

[illegible]

October 5, 2010 10:33:27 AM

Accept

Setup Start

Stop

Cust Item ID:

Start Date: 10/05/10 **Start Qty:** 1.00

Required Date: 10/19/10 **Req'd Qty:** 1.00

Customer:

Reference:

Run Start

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

Stop

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Operation Description

Set Up/ Run Hours

Tool ID	Tool #	Plan Code
---------	--------	-----------

Accept Qty	Reject Qty	Reject Number	Insp. Stamp

SprayPaint

0.00

ml 10 10 25 (1)



SprayPaint

SprayPaint

Spray Painting

Memo

0.00

1-Prime inside and outside crosstube as per QSI 005 4.2 B.
2-Paint outside crosstube with ~~White~~ Intron as per QSI 005 4.2

PRIME:

Start Time: 9:30
Fininish Time: 10:30

PAINT:

Start Time: 2:30
Finish Time: 3:30

0.00

cross tube as per QSI 005 4.2 B 114424

th White Iron as per QSI 005 4.2

Self Heat Blue B 115509

clear Self Heat B 115506

QC14- Inspect Spray Paint

0.00

~~84~~ 10-10-26 (21)



OC

Quality Control

Memo

0.00

Wrap in plastic bag to protect from scratches

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62605

October 5, 2010 10:33:27 AM



Page 6

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Aft, Blue

Start Date: 10/05/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/19/10 Req'd Qty: 1.00



Customer:

Reference:

Run Start



Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220 	Crosstubes	0.00				<u>ml</u>	<u>10</u>	<u>10</u>	<u>26</u> ①
Crosstubes	Memo	0.00							
Crosstubes	1-Install nut plates as per Dwg D206-667-243.								
230 	Skidtubes	0.00				<u>ml</u>	<u>10</u>	<u>10</u>	<u>26</u> ①
Crosstubes	Memo	0.00							
Crosstubes	1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up. A/R Magnobond 6398 : <u>114158 exp: 01/2011</u>								
	2-Install supports and clamps as per Dwg D206-667-243. Torque clamps to 80-100 in lb <u>ml 10 10 27</u> ①								

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62605

October 5, 2010 10:33:27 AM



Page 7

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Aft, Blue

Start Date: 10/05/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/19/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop

Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

240

QC5- Inspect part completeness to step on W/O

0.00



QC

Memo

0.00

Quality Control

8/10/10/27

(76)

250

Pick Kit

0.00



Packaging

Memo

0.00

Packaging

10/10/27 SP

260

QC4- 100% Inspect kits for completeness

0.00



QC

Memo

0.00

Quality Control

8/10/10/28

(76)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Work Order ID 62605

October 5, 2010 10:33:27 AM



Page 8

Item ID: D206-667-203BL

Accept



Setup Start



Revision ID:

Stop



Item Name: Crosstube Aft, Blue

Start Date: 10/05/10 Start Qty: 1.00



Cust Item ID:

Required Date: 10/19/10 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start



QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-203								
	Location: <u>114</u>								
	PPP Rev: <u>D</u>								
280		0.00							
	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

10/10/28

10/10/28

MF
10-10-28

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October 5, 2010 10:33:27 AM

Page 1

Work Order ID: 62605

Parent Item: D206-667-203BL

Parent Item Name: Crosstube Aft, Blue

Start Date: 10/05/10

Required Date: 10/19/10

Start Qty: 1.00

Required Qty: 1.00

Comments:

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
---------------------------------	------------------------	---------------	-------------	---------------------	------------------	-----------------	--------------------	----------------	-------------	--------------	---------------	----------------	--------

AN5-10A

Purchased

No

Each

305.0000

10

10



Bolt

Location

Loc Qty

Loc Code

ST337

305

115108

18

115429

50

115589

100

115700

137



10/10/27 SP

AN5-32A

Purchased

No

Each

300.0000

4

4



Bolt

Location

Loc Qty

Loc Code

ST340

300

114056

40

114405

50

115016

50

115108

50

115589

60

115698

50



10/10/27 SP

AN5-34A

Purchased

No

Each

68.0000

4

4



Bolt

Location

Loc Qty

Loc Code

ST340

68

113149

2

113226

46

115835

20



10/10/27 SP

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October 5, 2010 10:33:27 AM

Page 2

Work Order ID: 62605

Parent Item: D206-667-203BL

Parent Item Name: Crosstube Aft, Blue

Start Date: 10/05/10

Required Date: 10/19/10

Start Qty: 1.00

Required Qty: 1.00

AN960JD516 NAS1149D0563J Purchased No

Each 34.0000 18 18



Washer



M114742 10/10/28

Location

Loc Qty

Loc Code

ST
103694
107534
109287

34
18
12
4

D206-667-203TRN Manufactured No

Each 2.0000 1 1



Crosstube Turning Detail



SAP 10-10-13

Location

Loc Qty

Loc Code

LG
61983
62029

2
1
1

D2873-043 Manufactured No

Each 16.0000 2 2



Nut Plate Assembly



10 10 26

Location

Loc Qty

Loc Code

ST
60981

16
16

D2873-045 Manufactured No

Each 14.0000 2 2



Nut Plate Assembly



10 10 26

Location

Loc Qty

Loc Code

LG
60982

14
14

October 5, 2010 10:33:27 AM

Shop Packet Print

Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October 5, 2010 10:33:27 AM

Page 3

Work Order ID: 62605

Parent Item: D206-667-203BL

Parent Item Name: Crosstube Aft, Blue

Start Date: 10/05/10

Required Date: 10/19/10

Start Qty: 1.00

Required Qty: 1.00

D2892-1 Manufactured No

Each

32.0000

2

2



Support

Blue

BH 62592

Location

Loc Qty

Loc Code

LG

32

41986

12

42785

20

Each

91.6590

4

4

D3595-063-450

Manufactured No



RUBBER CUSHION

Location

Loc Qty

Loc Code

LG

91.65897368

53775

5.97897368

58161

3.56

59580

10.12

61465

72

MS20601-AD4W10

Purchased No



RIVET

Each

32.0000

14

14

Location

Loc Qty

Loc Code

LG051

18

114245

2

115405

16

ST322

14

113220

14

ml 10.10.26

ml 10 10 26

ml 10.10.26

October 5, 2010 10:33:27 AM

Shop Packet Print

Page 3

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

October 5, 2010 10:33:27 AM

Work Order ID: 62605

Parent Item: D206-667-203BL

Parent Item Name: Crosstube Aft, Blue

Start Date: 10/05/10

Required Date: 10/19/10

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

Each

899.0000

4

4



Nut



Widors

Location

Loc Qty

Loc Code

ST139

26

114813

26

ST300

873

115156

373

115594

500

4

MS21920-22

Purchased

No

Each

62.0000

4

4



Clamp(per MIL-DTL-8783C)



ml 10-10-26

Location

Loc Qty

Loc Code

LG

62

114077

62

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

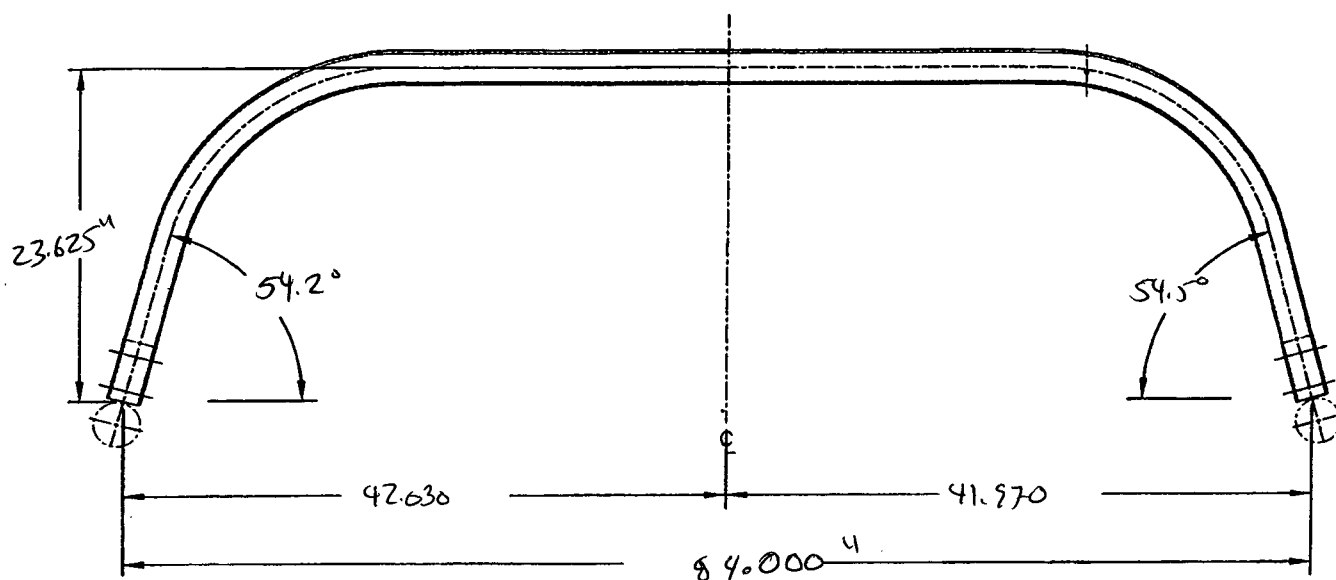
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD	Work Order:	62605
Description: Crosstube High Aft (206L)	Part Number:	D206-667-203
Inspection Dwg: D206-667-243 Rev: C		Page 1 of 1

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.1

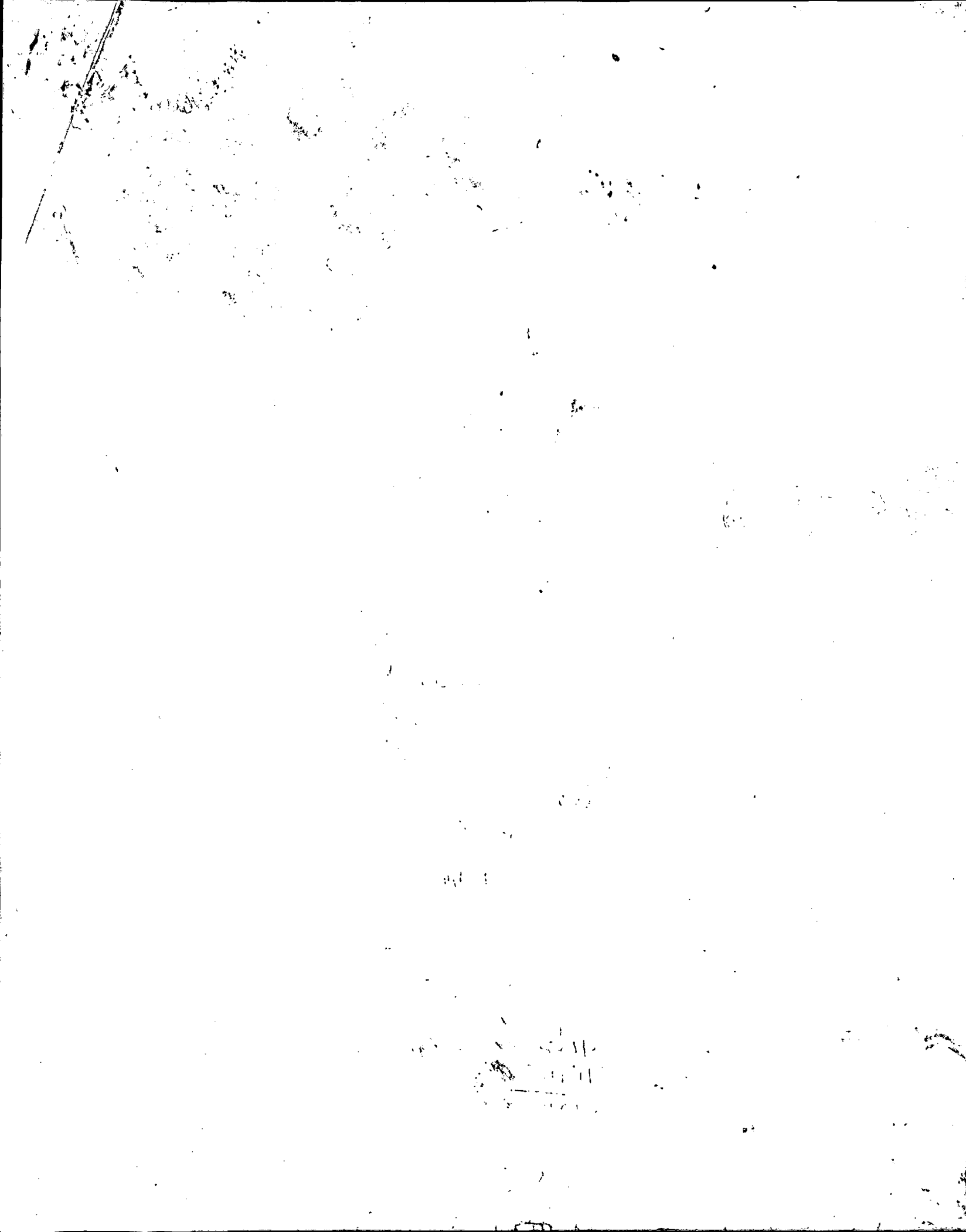


Comments

QC15 Inspection	8
Date	10/10/14

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.17	Dwg Rev updated	KJ	
C	09.12.14	Dimensions update per Dwg Rev C	KJ	

$$\begin{array}{r}
 42.030 \\
 42.030 \\
 \hline
 84.060
 \end{array}$$



Item	Qty -243	Part Number	Description
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

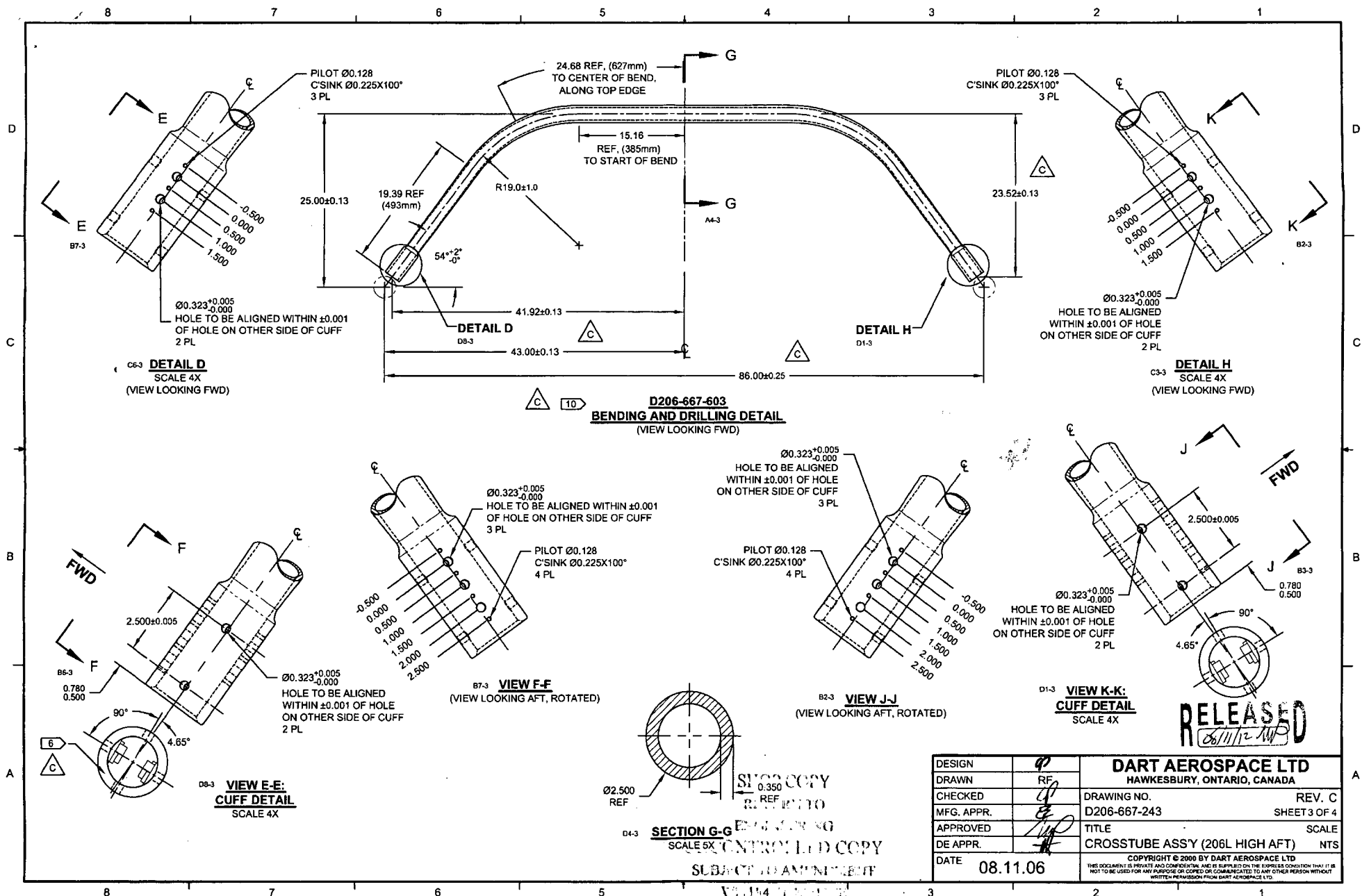
GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITH STAMP
WORK CENTER
NO. 62605
0210/10/05

RELEASED
08/11/06

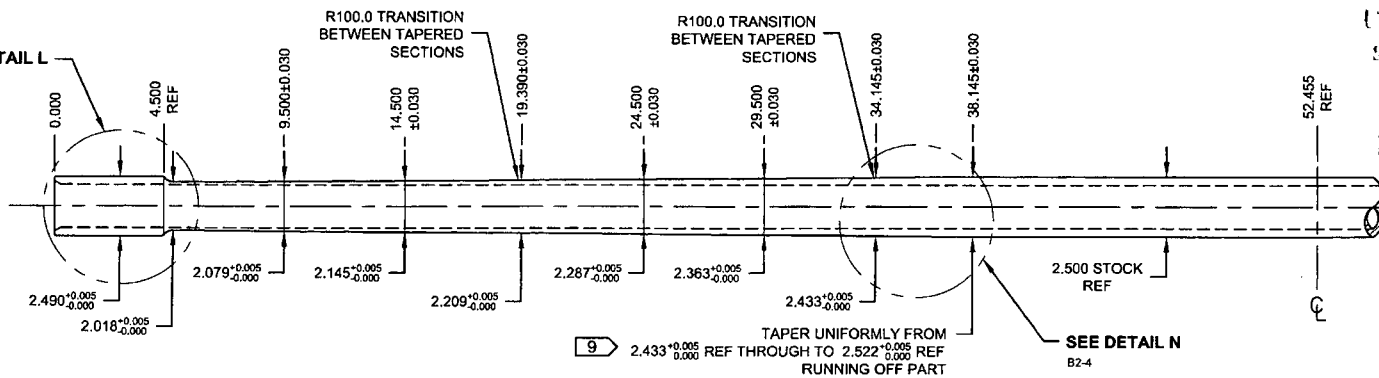
C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & A5-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, C5-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	<u>92</u>	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	<u>17</u>	DRAWING NO.	REV. C
MFG. APPR.	<u>17</u>	D206-667-243	SHEET 1 OF 4
APPROVED	<u>17</u>	TITLE	SCALE
DE APPR.	<u>17</u>	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSES OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	



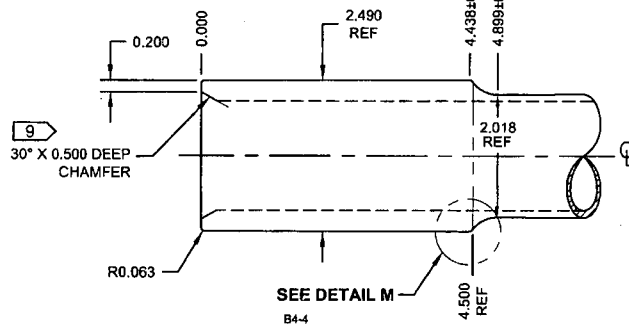
DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	EP	D206-667-243	SHEET 3 OF 4
APPROVED	EP	TITLE	SCALE
DE APPR.	EP	CROSSTUBE ASSY (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD	
THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.			

NO. 62605

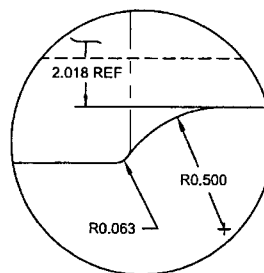
SEE DETAIL L
B7-4



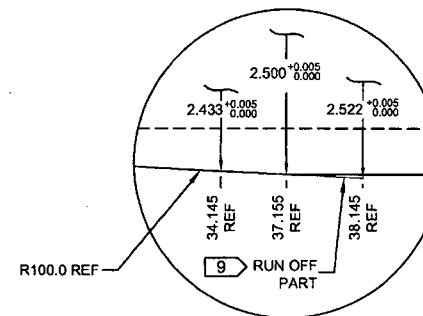
TURNING DETAIL



DETAIL L: CROSSTUBE CUFF
NOT TO SCALE



DETAIL M: CUFF TRANSITION
NOT TO SCALE



DETAIL N: TAPER RUN-OFF
NOT TO SCALE

RELEASED
08/11/12

DESIGN	90	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	90	DRAWING NO. D206-667-243	REV. C
MFG. APPR.	90	SHEET 4 OF 4	
APPROVED	90	TITLE CROSSTUBE ASS'Y (206L HIGH AFT)	SCALE
DE APPR.	90	NTS	
DATE	08.11.06	COPYRIGHT © 2000 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.	

Part Number D206-667-203

— 2. —

[illegible]

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



LIQUID PENETRANT TEST REPORT

P- 15031

PAGE 1 OF 1

CLIENT Dart Aerospace DATE Oct 21st 2010 TIME AM ☒ PM ☐
ATTENTION Linde Lacelle ACUREN JOB NO. 188-10-0927
ADDRESS 1270 Aberdeen St. POWO No. 12783
Hawkesbury WORK LOCATION Hawkesbury
ACCEPTANCE STD. ASTM 1417/08-03E REV./DATE 2005
PROJECT x-tubes # D206-667-203BL and D206-667-103BL
ITEM(S) EXAMINED Job #'s: 62598, 62599, 62602, 62605, 62606, 62607

JOB DESCRIPTION PROCEDURE No. LT- REV./DATE TECHNIQUE No. LT- REV./DATE
PART No. D206-667-203BL, D206-667-103BL MATERIAL ALODINED ALUM THICKNESS N/A
SCOPE WET FLUORESCENT LIQUID PENETRANT INSPECTION CARRIED OUT ON 100% EXTERNAL SURFACE OF X-TUBES

TEST DETAILS

METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED
FAMILY BRAND MAGNAFLUX BLACK LIGHT S/N 8178 ☒ OUTPUT > 1000 μ W/cm² ☐ AMBIENT < 2 fc
PENETRANT ZLC7 MINIMUM DWELL TIME 1045 MIN. LIGHTING EQUIP. ☒ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE
PENETRANT REMOVER H2O MINIMUM DRY TIME >10 MIN. OTHER CAL Oct 15th 2010
DEVELOPER SKD52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N CAL DUE DATE April 2011
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY

TEST SURFACE

SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL
SURFACE TEMPERATURE ☐ < -4°C/20°F ☐ -4°C/20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- (☐ METRIC ☐ IMPERIAL)

WET FLUORESCENT LIQUID
PENETRANT INSPECTION
CARRIED OUT ON 100%
EXTERNAL SURFACE ON X-TUBES:
Job #'s: 62598: ACCEPTABLE
62599: ACCEPTABLE
62602: ACCEPTABLE
62605: ACCEPTABLE
62606: ACCEPTABLE
62607: ACCEPTABLE

THM 10 10 25

Scope of Services

The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.

Standard of Care

performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES

CLIENT REPRESENTATIVE Ian Tilley DTR # E-63200
TECHNICIAN (SIGNATURE): FREDERICK CHAGNON REPORT REVIEWED BY:
NAME (PRINT): FREDERICK CHAGNON NAME INITIALS
CGSB LEVEL I SNT LEVEL II CGSB LEVEL II SNT LEVEL II
CGSB REG. No. 10560 CGSB REG. No. 10560

WHITE - CLIENT COPY

CANARY - OFFICE COPY

PINK - TECHNICIAN COPY

GOLD - OFFICE COPY